

Performance characteristics

- RF/LO band: 3GHz ~ 10GHz
- IF band: DC-4GHz
- Frequency conversion loss: 7dB
- RF-IF isolation: 18dB
- LO-IF isolation: 35dB
- LO-RF isolation: 45dB
- Local oscillator power: 17dBm
- Package size: 3×3mm

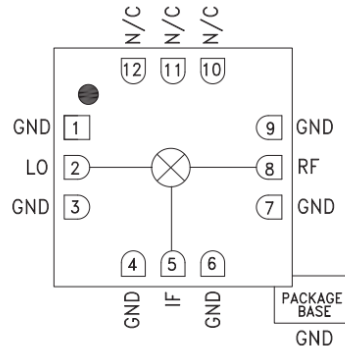
Overview

CW787SP3 is a GaAs MMIC passive double balanced mixer chip, with RF/LO frequency covering 3 ~ 10GHz and IF frequency covering DC ~ 4GHz respectively, conversion loss less than 8.5 dB, RF-IF isolation greater than 16dB, LO-IF isolation greater than 32dB, LO-RF isolation greater than 42dB, and typical LO input power of 17dBm.

Typical application

- Base station communication
- Wireless infrastructure
- Automotive electronics
- Instruments and meters

Functional Diagram



Electrical performance table (TA=+25 °C, IF=0.1GHz, LO=17dBm)

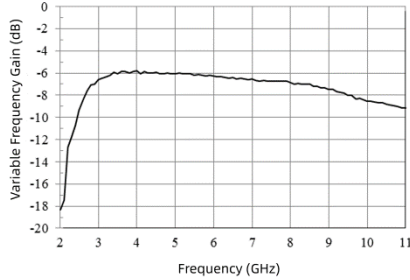
Indicators	Minimum value	Typical value	Maximum value	Unit
Radio frequency	3 ~ 10			GHz
Local oscillator frequency	3 ~ 10			GHz
Intermediate frequency	DC ~ 4			GHz
Frequency conversion loss	6	7	8.5	dB
RF-IF isolation	16	18	25	dB
LO-IF isolation	32	35	37	dB
LO-RF isolation	42	45	55	dB
P1dB (input)	9	12	15	dBm

Use parameters (exceeding any of the above maximum limits may cause permanent damage)

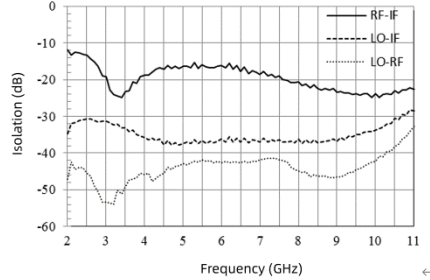
RF/IF power	26dBm
Local oscillator power	26dBm
Storage temperature	-65 °C ~ 150 °C
Operating temperature	-55 °C ~ 125 °C

Test curve

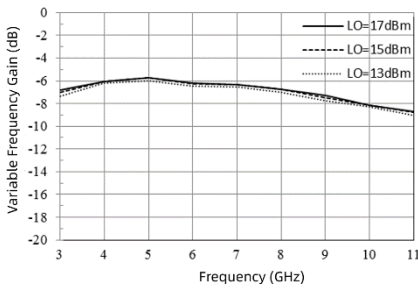
Frequency conversion loss curve @ LO=13dBm, IF frequency 1GHz



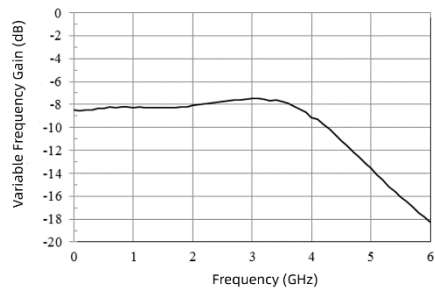
Isolation @ LO=13dBm, IF 1GHz



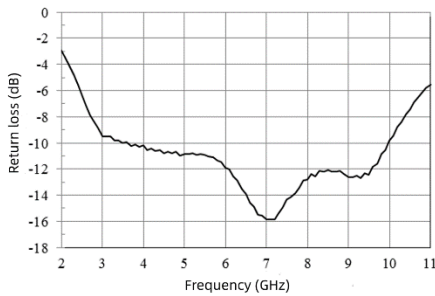
Frequency conversion loss curve @ IF frequency 1GHz



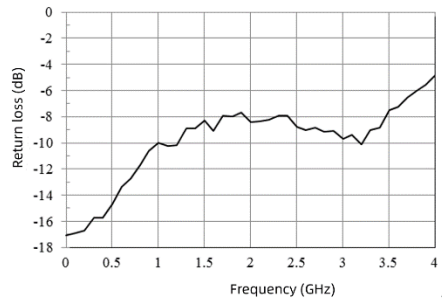
IF bandwidth @ LO=40GHz, LO=13dBm



RF return loss



IF return loss

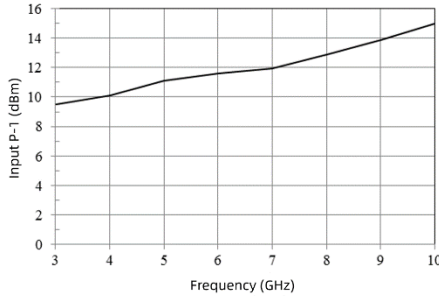


CW

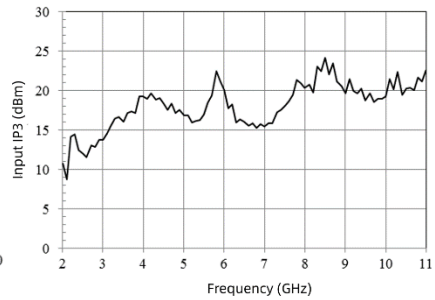
Mixer series

Test curve

Enter P-1 @ LO=13dBm



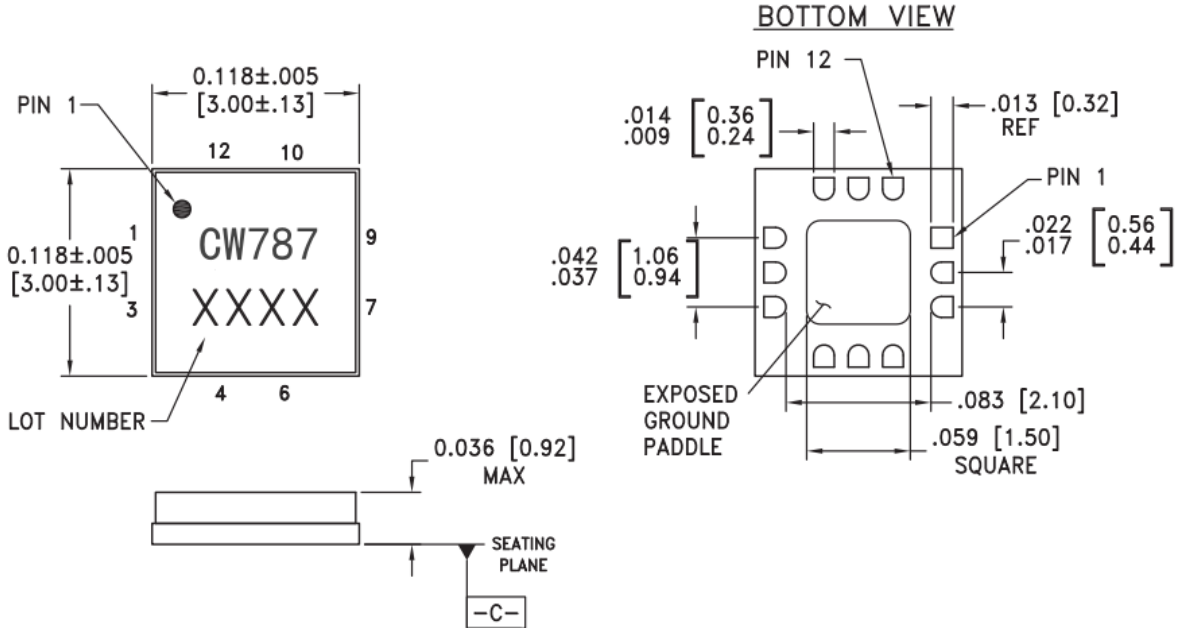
Enter IP3 @ LO=13dBm



Pin Descriptions

Pin Number	Function	Description	Interface Schematic
1, 3, 4, 6, 7, 9	GND	Package bottom must also be connected to RF/DC ground.	
2	LO	This pin is DC coupled and matched to 50 Ohms.	
5	IF	This pin is DC coupled. For applications not requiring operation to DC, this port should be DC blocked externally using a series capacitor whose value has been chosen to pass the necessary IF frequency range. For operation to DC, this pin must not source or sink more than 8 mA of current or part non-function and possible part failure will result.	
8	RF	This pin is DC coupled and matched to 50 Ohms.	
10, 11, 12	N/C	The pins are not connected internally; however, all data shown herein was measured with these pins connected to RF/DC ground externally.	

Outline Drawing



NOTES:

1. PACKAGE BODY MATERIAL: PLASTIC
2. LEAD AND GROUND PADDLE PLATING:
30-80 MICROINCHES GOLD OVER 50 MICROINCHES MINIMUM NICKEL.
3. DIMENSIONS ARE IN INCHES (MILLIMETERS).
4. LEAD SPACING TOLERANCE IS NON-CUMULATIVE.
5. CHARACTERS TO BE HELVETICA MEDIUM, .025 HIGH, BLACK INK, OR LASER MARK LOCATED APPROX. AS SHOWN.
6. PACKAGE WARP SHALL NOT EXCEED 0.05MM DATUM - C -
7. ALL GROUND LEADS AND GROUND PADDLE MUST BE SOLDERED TO PCB RF GROUND.
8. CLASSIFIED AS MOISTURE SENSITIVITY LEVEL (MSL) 1.